UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER
WONG, KIN C

ART UNIT	PAPER NUMBER
2627	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-22* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☒ All   b)☐ Some * c)☐ None of:
      1.☐ Certified copies of the priority documents have been received.
      2.☐ Certified copies of the priority documents have been received in Application No. _____ .
      3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____ .
4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____ .

DETAILED ACTION

Claim Objections

Claims (8-10) are objected under 37 CFR 1.75 (a) as being indefinite for failing to

particularly point out and distinctly claim the subject matter which applicant regards as

the invention. The claim 8, line 2 contains a phrase "steps of" that construed as a

method within the apparatus claim. Examiner suggests to changes the phrase to

"functions of" or "procedurals of" or "instructions of" so that confusion between the

method and apparatus could be avoided. Claims 9-10 are objected because of the

parent claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims (1-3 and 11-13) are rejected under 35 U.S.C. 102(b) as being anticipated

by Hetzler (5954820).

Regarding claims 1 and 11: Hetzler discloses a battery powered device (col. 1,

lines 17-23 of Hetzler) including:

a disk memory (80) (element 60 in figure 2 and see associated descriptions for details);

a means (82) (element 62 in figure 2 and see associated descriptions for descriptions for details) for rotating the disk memory;

a read/write means (84) (element 61 in figure 2 and see associated descriptions for details) for at least one of reading and writing streaming data from or to the disk memory;

a buffer memory (86) (element 57 in figure 2 and see associated descriptions for details) for storing data read from or to be written to the disk memory;

an energy saving scheduling means (as depicted in figure 5 and associated descriptions for details) (96,100) for monitoring the buffer memory and controlling the disk memory rotating means in accordance with the monitored buffer memory (col. 10, lines 13-37 of Hetzler).

Regarding claims 2 and 12: Hetzler teaches that wherein the scheduling means (100) includes: (1) a means for monitoring how full the buffer memory is; and (2) a means for monitoring a rate of data transfer into/out of the buffer memory (col. 10, lines 13-24 of Hetzler).

Regarding claims 3 and 13: Hetzler teaches wherein the scheduling means (100) adjusts scheduled disk starting and stopping times in accordance with the monitored fullness of the buffer memory (86) and the data transfer rate (col. 10, lines 13-32 of Hetzler).

Claims (1-3 and 11-13) are rejected under 35 U.S.C. 102(b) as being anticipated

by Veltchev et al (6590730).

Regarding claims 1 and 11: Veltchev et al discloses a battery powered device

(col. 1, lines 24-29 and col. 1, lines 56-64 of Veltchev et al) including:

a disk memory (80) (element 12 in figure 1 of Veltchev et al and see associated

descriptions for details);

a means (82) (element 12 in figure 1 and see associated descriptions for details)

for rotating the disk memory;

a read/write means (84) for at least one of reading and writing streaming data

from or to the disk memory (an inherent element component in a disk drive);

a buffer memory (86) (element 18 in figure 1 and see associated descriptions for

details) for storing data read from or to be written to the disk memory;

an energy saving scheduling means (96,100) for monitoring the buffer memory

and controlling the disk memory rotating means in accordance with the monitored buffer

memory (col. 2, lines 37-44 and col.2, line 58 to col. 3, line 6 of Veltchev et al).

Regarding claims 2 and 12: Veltchev et al teaches that wherein the scheduling

means (100) includes: (1) a means for monitoring how full the buffer memory is; and (2)

a means for monitoring a rate of data transfer into/out of the buffer memory (as depicted

in figures 3A-3D and col. 3, lines 14-24 of Veltchev et al).

Regarding claims 3 and 13: Veltchev et al depicts in figures 3A-3D that wherein

the scheduling means (100) adjusts scheduled disk starting and stopping times in

accordance with the monitored fullness of the buffer memory (86) and the data transfer

rate (see associated descriptions for details).

Claims (1-22) are rejected under 35 U.S.C. 102(b) as being anticipated by Juso

et al (5799197).

Regarding claims 1: Juso et al discloses a battery powered device (col. 2, lines

7-14 of Juso et al) including:

a disk memory (80) (element 1 in figure 1 of Juso et al and see associated

descriptions for details);

a means (82) for rotating the disk memory (element 12 in figure 1 and see

associated descriptions for details);

a read/write means (84) (element 21 in figure 1 and see associated descriptions

for details) for at least one of reading and writing streaming data from or to the disk

memory;

a buffer memory (86) (element 6 in figure 1 and col. 6, lines 53-60 of Juso et al)

for storing data read from or to be written to the disk memory;

an energy saving scheduling means (96,100) for monitoring the buffer memory

and controlling the disk memory rotating means in accordance with the monitored buffer

memory (col. 6, lines 53-60 of Juso et al).

Regarding claim 2: Juso et al teaches that wherein the scheduling means (100)

includes: (1) a means for monitoring how full the buffer memory is; and (2) a means for

monitoring a rate of data transfer into/out of the buffer memory (col. 5, lines 26-33 of

Juso et al).

Regarding claim 3: Juso et al teaches that wherein the scheduling means (100) adjusts scheduled disk starting and stopping times in accordance with the monitored fullness of the buffer memory (86) and the data transfer rate (col. 5, lines 26-34 of Juso et al).

Regarding claim 4: Juso et al teaches that further including: a Back-Front-Back scheduling process (100) to reorder a refilling/emptying of various buffers and to remove gaps between buffer memory filling intervals (col. 5, lines 17-25 of Juso et al).

Regarding claim 5: Juso et al teaches that wherein the reading/writing means (84) both reads and writes and wherein the buffer memory (86) includes a plurality of buffer memories, during a mode with concurrent reading and writing, at least one buffer memory buffers data to be written and at least one buffer memory buffers data that has been read, the scheduling means (100) monitoring the write buffer memory to determine how long before it is full and the read buffer memory to determine how long before it is empty (col. 5, lines 17-33 of Juso et al).

Regarding claim 6: Juso et al teaches that further including: a system means (90) for controlling access to the memory means; a means (92) for user input/output, in communication with the controller means (90); a means (94) for coherently storing/reading the streams to/from the storage means (80), in communication with the controller means (90) (col. 5, line 45 to col. 6, line 2 of Juso et al).

Regarding claim 7: the limitations of wherein the buffer memory is partitioned into n buffers (80) for n data streams are considered inherent within the reference because the data management in the apparatus.

Regarding claims 8-10: the limitations of the mathematical algorithms are considered inherent; because, the mathematical representations of the functions of the apparatus are inherent within the reference.

Regarding claims 11-22: the method claims (11-12) are met when the apparatus of Juso et al is in use.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Cumpson et al (7075744) could be read in claims but not used for among other reasons. Douglis et al (5493670), Grover et al (7334082), Hetzler (5682273), Nigam (4984103), Shinada (5502700) and Ueki (6310848) are cited for power management.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Wong whose telephone number is (571) 272-7566.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W. Young can be reached on (571) 272-7582. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. Wong/
Primary Examiner
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kw

30 Jun 08